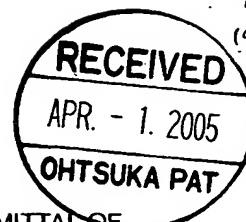


# PATENT COOPERATION TREATY

5/31  
1994



From the INTERNATIONAL SEARCHING AUTHORITY

## PCT

NOTIFICATION OF TRANSMITTAL OF  
THE INTERNATIONAL SEARCH REPORT AND  
THE WRITTEN OPINION OF THE INTERNATIONAL  
SEARCHING AUTHORITY, OR THE DECLARATION

To:

OHTSUKA, Yasunori  
7th Floor  
Shuwa Kioicho Park Building  
3-6, Kioicho, Chidoya-ku  
Tokyo 102-0094  
JAPAN

(PCT Rule 44.1)

Date of mailing (day/month/year) 31/03/2005	
Applicant's or agent's file reference P204-0456WO	<b>FOR FURTHER ACTION</b> See paragraphs 1 and 4 below
International application No. PCT/JP2004/019277	International filing date (day/month/year) 16/12/2004
Applicant CANON KABUSHIKI KAISHA	

1. ☒ The applicant is hereby notified that the international search report and the written opinion of the International Searching Authority have been established and are transmitted herewith.

**Filing of amendments and statement under Article 19:**

The applicant is entitled, if he so wishes, to amend the claims of the International Application (see Rule 46):

**When?** The time limit for filing such amendments is normally 2 months from the date of transmittal of the International Search Report; however, for more details, see the notes on the accompanying sheet.

**Where?** Directly to the International Bureau of WIPO, 34 chemin des Colombettes  
1211 Geneva 20, Switzerland, Facsimile No.: (41-22) 740.14.35

For more detailed instructions, see the notes on the accompanying sheet.

2. ☐ The applicant is hereby notified that no international search report will be established and that the declaration under Article 17(2)(a) to that effect and the written opinion of the International Searching Authority are transmitted herewith.
3. ☐ **With regard to the protest** against payment of (an) additional fee(s) under Rule 40.2, the applicant is notified that:
- ☐ the protest together with the decision thereon has been transmitted to the International Bureau together with the applicant's request to forward the texts of both the protest and the decision thereon to the designated Offices.
- ☐ no decision has been made yet on the protest; the applicant will be notified as soon as a decision is made.

**4. Reminders**


Shortly after the expiration of **18 months** from the priority date, the international application will be published by the International Bureau. If the applicant wishes to avoid or postpone publication, a notice of withdrawal of the international application, or of the priority claim, must reach the International Bureau as provided in Rules 90bis.1 and 90bis.3, respectively, before the completion of the technical preparations for international publication.

The applicant may submit comments on an informal basis on the written opinion of the International Searching Authority to the International Bureau. The International Bureau will send a copy of such comments to all designated Offices unless an international preliminary examination report has been or is to be established. These comments would also be made available to the public but not before the expiration of 30 months from the priority date.

Within **19 months** from the priority date, but only in respect of some designated Offices, a demand for international preliminary examination must be filed if the applicant wishes to postpone the entry into the national phase until **30 months** from the priority date (in some Offices even later); otherwise, the applicant must, **within 20 months** from the priority date, perform the prescribed acts for entry into the national phase before those designated Offices.

In respect of other designated Offices, the time limit of **30 months** (or later) will apply even if no demand is filed within 19 months.

See the Annex to Form PCT/IB/301 and, for details about the applicable time limits, Office by Office, see the *PCT Applicant's Guide*, Volume II, National Chapters and the WIPO Internet site.

Name and mailing address of the International Searching Authority  European Patent Office, P.B. 5818 Patentlaan 2 NL-2280 HV Rijswijk Tel. (+31-70) 340-2040, Tx. 31 651 epo nl, Fax: (+31-70) 340-3016	Authorized officer  Jorge García Solé
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These Notes are intended to give the basic instructions concerning the filing of amendments under article 19. The Notes are based on the requirements of the Patent Cooperation Treaty, the Regulations and the Administrative Instructions under that Treaty. In case of discrepancy between these Notes and those requirements, the latter are applicable. For more detailed information, see also the PCT Applicant's Guide, a publication of WIPO.

In these Notes, "Article", "Rule", and "Section" refer to the provisions of the PCT, the PCT Regulations and the PCT Administrative Instructions respectively.

## INSTRUCTIONS CONCERNING AMENDMENTS UNDER ARTICLE 19

The applicant has, after having received the international search report, one opportunity to amend the claims of the international application. It should however be emphasized that, since all parts of the international application (claims, description and drawings) may be amended during the international preliminary examination procedure, there is usually no need to file amendments of the claims under Article 19 except where, e.g. the applicant wants the latter to be published for the purposes of provisional protection or has another reason for amending the claims before international publication. Furthermore, it should be emphasized that provisional protection is available in some States only.

### What parts of the international application may be amended?

Under Article 19, only the claims may be amended.

During the international phase, the claims may also be amended (or further amended) under Article 34 before the International Preliminary Examining Authority. The description and drawings may only be amended under Article 34 before the International Examining Authority.

Upon entry into the national phase, all parts of the international application may be amended under Article 28 or, where applicable, Article 41.

### When?

Within 2 months from the date of transmittal of the international search report or 16 months from the priority date, whichever time limit expires later. It should be noted, however, that the amendments will be considered as having been received on time if they are received by the International Bureau after the expiration of the applicable time limit but before the completion of the technical preparations for international publication (Rule 46.1).

### Where not to file the amendments?

The amendments may only be filed with the International Bureau and not with the receiving Office or the International Searching Authority (Rule 46.2).

Where a demand for international preliminary examination has been/is filed, see below.

### How?

Either by cancelling one or more entire claims, by adding one or more new claims or by amending the text of one or more of the claims as filed.

A replacement sheet must be submitted for each sheet of the claims which, on account of an amendment or amendments, differs from the sheet originally filed.

All the claims appearing on a replacement sheet must be numbered in Arabic numerals. Where a claim is cancelled, no renumbering of the other claims is required. In all cases where claims are renumbered, they must be renumbered consecutively (Administrative Instructions, Section 205(b)).

The amendments must be made in the language in which the international application is to be published.

### What documents must/may accompany the amendments?

#### Letter (Section 205(b)):

The amendments must be submitted with a letter.

The letter will not be published with the international application and the amended claims. It should not be confused with the "Statement under Article 19(1)" (see below, under "Statement under Article 19(1)").

The letter must be in English or French, at the choice of the applicant. However, if the language of the international application is English, the letter must be in English; if the language of the international application is French, the letter must be in French.

The letter must indicate the differences between the claims as filed and the claims as amended. It must, in particular, indicate, in connection with each claim appearing in the international application (it being understood that identical indications concerning several claims may be grouped), whether

- (i) the claim is unchanged;
- (ii) the claim is cancelled;
- (iii) the claim is new;
- (iv) the claim replaces one or more claims as filed;
- (v) the claim is the result of the division of a claim as filed.

The following examples illustrate the manner in which amendments must be explained in the accompanying letter:

1. [Where originally there were 48 claims and after amendment of some claims there are 51]:  
"Claims 1 to 29, 31, 32, 34, 35, 37 to 48 replaced by amended claims bearing the same numbers; claims 30, 33 and 36 unchanged; new claims 49 to 51 added."
2. [Where originally there were 15 claims and after amendment of all claims there are 11]:  
"Claims 1 to 15 replaced by amended claims 1 to 11."
3. [Where originally there were 14 claims and the amendments consist in cancelling some claims and in adding new claims]:  
"Claims 1 to 6 and 14 unchanged; claims 7 to 13 cancelled; new claims 15, 16 and 17 added." or  
"Claims 7 to 13 cancelled; new claims 15, 16 and 17 added; all other claims unchanged."
4. [Where various kinds of amendments are made]:  
"Claims 1-10 unchanged; claims 11 to 13, 18 and 19 cancelled; claims 14, 15 and 16 replaced by amended claim 14; claim 17 subdivided into amended claims 15, 16 and 17; new claims 20 and 21 added."

**"Statement under article 19(1)" (Rule 46.4)**

The amendments may be accompanied by a statement explaining the amendments and indicating any impact that such amendments might have on the description and the drawings (which cannot be amended under Article 19(1)).

The statement will be published with the international application and the amended claims.

It must be in the language in which the international application is to be published.

It must be brief, not exceeding 500 words if in English or if translated into English.

It should not be confused with and does not replace the letter indicating the differences between the claims as filed and as amended. It must be filed on a separate sheet and must be identified as such by a heading, preferably by using the words "Statement under Article 19(1)."

It may not contain any disparaging comments on the international search report or the relevance of citations contained in that report. Reference to citations, relevant to a given claim, contained in the international search report may be made only in connection with an amendment of that claim.

**Consequence if a demand for international preliminary examination has already been filed**

If, at the time of filing any amendments under Article 19, a demand for international preliminary examination has already been submitted, the applicant must preferably, at the same time of filing the amendments with the International Bureau, also file a copy of such amendments with the International Preliminary Examining Authority (see Rule 62.2(a), first sentence).

**Consequence with regard to translation of the international application for entry into the national phase**

The applicant's attention is drawn to the fact that, where upon entry into the national phase, a translation of the claims as amended under Article 19 may have to be furnished to the designated/elected Offices, instead of, or in addition to, the translation of the claims as filed.

For further details on the requirements of each designated/elected Office, see Volume II of the PCT Applicant's Guide.

## PCT

## INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

Applicant's or agent's file reference <b>P204-0456WO</b>	<b>FOR FURTHER ACTION</b> see Form PCT/ISA/220 as well as, where applicable, item 5 below.	
International application No. <b>PCT/JP2004/019277</b>	International filing date (day/month/year) <b>16/12/2004</b>	(Earliest) Priority Date (day/month/year) <b>16/12/2003</b>
Applicant  <b>CANON KABUSHIKI KAISHA</b>		

This International Search Report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This International Search Report consists of a total of 3 sheets.

☒ It is also accompanied by a copy of each prior art document cited in this report.

## 1. Basis of the report

- a. With regard to the **language**, the international search was carried out on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.

☐ The international search was carried out on the basis of a translation of the international application furnished to this Authority (Rule 23.1(b)).

- b. ☐ With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, see Box No. I.

2. ☐ **Certain claims were found unsearchable** (See Box II).

3. ☐ **Unity of invention is lacking** (see Box III).

4. With regard to the **title**,

☒ the text is approved as submitted by the applicant.

☐ the text has been established by this Authority to read as follows:

5. With regard to the **abstract**,

☒ the text is approved as submitted by the applicant.

☐ the text has been established, according to Rule 38.2(b), by this Authority as it appears in Box No. IV. The applicant may, within one month from the date of mailing of this international search report, submit comments to this Authority.

6. With regard to the **drawings**,

- a. the figure of the **drawings** to be published with the abstract is Figure No. 2

☐ as suggested by the applicant.

☐ as selected by this Authority, because the applicant failed to suggest a figure.

☒ as selected by this Authority, because this figure better characterizes the invention.

- b. ☐ none of the figures is to be published with the abstract.

## INTERNATIONAL SEARCH REPORT

International Application No

JP2004/019277

**A. CLASSIFICATION OF SUBJECT MATTER**  
 IPC 7 G06K9/00

According to International Patent Classification (IPC) or to both national classification and IPC

**B. FIELDS SEARCHED**

Minimum documentation searched (classification system followed by classification symbols)  
 IPC 7 G06K

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal, WPI Data, PAJ

**C. DOCUMENTS CONSIDERED TO BE RELEVANT**

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	EP 1 262 908 A (CANON KABUSHIKI KAISHA) 4 December 2002 (2002-12-04)	1,6,7, 12-20
Y	abstract; figures 2,4 paragraphs '0039!, '0041! - '0043!, '0058!, '0064!	2,3,8,11
Y	US 2002/181775 A1 (MATSUGU MASAKAZU) 5 December 2002 (2002-12-05) paragraphs '0047!, '0049!, '0063!, '0067!, '0068!	2,3,11
Y	US 5 570 434 A (BADIQU+E,ACU E+EE ET AL) 29 October 1996 (1996-10-29) column 9, line 63 - column 10, line 4; figure 10	8

☐ Further documents are listed in the continuation of box C.

☒ Patent family members are listed in annex.

## \* Special categories of cited documents:

- \*A\* document defining the general state of the art which is not considered to be of particular relevance
- \*E\* earlier document but published on or after the international filing date
- \*L\* document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- \*O\* document referring to an oral disclosure, use, exhibition or other means
- \*P\* document published prior to the international filing date but later than the priority date claimed

- \*T\* later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
- \*X\* document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
- \*Y\* document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.
- \* & \* document member of the same patent family

Date of the actual completion of the international search

10 March 2005

Date of mailing of the international search report

31/03/2005

Name and mailing address of the ISA

European Patent Office, P.B. 5818 Patentlaan 2  
 NL - 2280 HV Rijswijk  
 Tel. (+31-70) 340-2040, Tx. 31 651 epo nl,  
 Fax: (+31-70) 340-3016

Authorized officer

Rimassa, S

# INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

T/JP2004/019277

Patent document cited in search report		Publication date		Patent family member(s)	Publication date
EP 1262908	A	04-12-2002	JP	2002358500 A	13-12-2002
			EP	1262908 A1	04-12-2002
			US	2002181765 A1	05-12-2002
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US 2002181775	A1	05-12-2002	JP	2002358523 A	13-12-2002
			EP	1246121 A2	02-10-2002
			US	2002181799 A1	05-12-2002
<hr/>					
US 5570434	A	29-10-1996	DE	4028191 A1	12-03-1992
			DE	59108393 D1	16-01-1997
			EP	0474304 A2	11-03-1992
			JP	3242678 B2	25-12-2001
			JP	4273388 A	29-09-1992
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# PATENT COOPERATION TREATY

From the  
INTERNATIONAL SEARCHING AUTHORITY

# PCT

To:

see form PCT/ISA/220

## WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY (PCT Rule 43bis.1)

Date of mailing  
(day/month/year) see form PCT/ISA/210 (second sheet)

Applicant's or agent's file reference  
see form PCT/ISA/220

**FOR FURTHER ACTION**  
See paragraph 2 below

International application No.  
PCT/JP2004/019277

International filing date (day/month/year)  
16.12.2004

Priority date (day/month/year)  
16.12.2003

International Patent Classification (IPC) or both national classification and IPC  
G06K9/00

Applicant  
CANON KABUSHIKI KAISHA

### 1. This opinion contains indications relating to the following items:

- ☒ Box No. I Basis of the opinion
- ☐ Box No. II Priority
- ☒ Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- ☐ Box No. IV Lack of unity of invention
- ☒ Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- ☐ Box No. VI Certain documents cited
- ☐ Box No. VII Certain defects in the international application
- ☐ Box No. VIII Certain observations on the international application

### 2. FURTHER ACTION

If a demand for international preliminary examination is made, this opinion will usually be considered to be a written opinion of the International Preliminary Examining Authority ("IPEA"). However, this does not apply where the applicant chooses an Authority other than this one to be the IPEA and the chosen IPEA has notified the International Bureau under Rule 66.1bis(b) that written opinions of this International Searching Authority will not be so considered.

If this opinion is, as provided above, considered to be a written opinion of the IPEA, the applicant is invited to submit to the IPEA a written reply together, where appropriate, with amendments, before the expiration of three months from the date of mailing of Form PCT/ISA/220 or before the expiration of 22 months from the priority date, whichever expires later.

For further options, see Form PCT/ISA/220.

### 3. For further details, see notes to Form PCT/ISA/220.

Name and mailing address of the ISA:



European Patent Office  
D-80298 Munich  
Tel. +49 89 2399 - 0 Tx: 523656 epmu d  
Fax: +49 89 2399 - 4465

Authorized Officer

Rimassa, S

Telephone No. +49 89 2399-2068



**WRITTEN OPINION OF THE  
INTERNATIONAL SEARCHING AUTHORITY**

International application No.  
PCT/JP2004/019277

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**Box No. I Basis of the opinion**

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1. With regard to the **language**, this opinion has been established on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.
  - ☐ This opinion has been established on the basis of a translation from the original language into the following language , which is the language of a translation furnished for the purposes of international search (under Rules 12.3 and 23.1(b)).
2. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application and necessary to the claimed invention, this opinion has been established on the basis of:
  - a. type of material:
    - ☐ a sequence listing
    - ☐ table(s) related to the sequence listing
  - b. format of material:
    - ☐ in written format
    - ☐ in computer readable form
  - c. time of filing/furnishing:
    - ☐ contained in the international application as filed.
    - ☐ filed together with the international application in computer readable form.
    - ☐ furnished subsequently to this Authority for the purposes of search.
3. ☐ In addition, in the case that more than one version or copy of a sequence listing and/or table relating thereto has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that in the application as filed or does not go beyond the application as filed, as appropriate, were furnished.
4. Additional comments:



**Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability**

The questions whether the claimed invention appears to be novel, to involve an inventive step (to be non obvious), or to be industrially applicable have not been examined in respect of:

- ☐ the entire international application,
- ☒ claims Nos. 5,9,10

because:

- ☐ the said international application, or the said claims Nos. relate to the following subject matter which does not require an international preliminary examination (*specify*):
- ☒ the description, claims or drawings (*indicate particular elements below*) or said claims Nos. 5,9,10 are so unclear that no meaningful opinion could be formed (*specify*):

**see separate sheet**

- ☐ the claims, or said claims Nos. are so inadequately supported by the description that no meaningful opinion could be formed.
- ☐ no international search report has been established for the whole application or for said claims Nos.
- ☐ the nucleotide and/or amino acid sequence listing does not comply with the standard provided for in Annex C of the Administrative Instructions in that:
  - the written form ☐ has not been furnished
  - ☐ does not comply with the standard
  - the computer readable form ☐ has not been furnished
  - ☐ does not comply with the standard
- ☐ the tables related to the nucleotide and/or amino acid sequence listing, if in computer readable form only, do not comply with the technical requirements provided for in Annex C-bis of the Administrative Instructions.
- ☐ See separate sheet for further details

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**Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**

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**1. Statement**

Novelty (N)	Yes: Claims	2,3,4,8,11
	No: Claims	1,6,7,12-20
Inventive step (IS)	Yes: Claims	4
	No: Claims	2,3,8,11
Industrial applicability (IA)	Yes: Claims	1-20
	No: Claims	

**2. Citations and explanations**

**see separate sheet**

**Re Item III**

The subject-matter of **claim 5** has not been evaluated because the expression "*relative relationship between analytical results*" is unintelligible.

Likewise obscure is the wording of **claims 9** and **10**, therefore it has not been possible to establish an opinion about novelty and inventive step for these claims.

**Re Item V**

1. Reference is made to the following documents:

D1: EP 1262908  
D2: US 2002 0181775  
D3: US 5570434

2. The present application does not meet the criteria of Article 33(1) PCT, because the subject-matter of **claim 1** is not new in the sense of Article 33(2) PCT.

Document D1 discloses (the references in parentheses applying to this document) a pattern identification method comprising (cf. § 41-43):

- a first feature extraction step of extracting a feature of a first layer;
- an analysis step of analysing a distribution of a feature extraction result
- a second feature extraction step of extracting a feature of a second layer on the basis of the distribution analysis at the previous step.

As a consequence, the subject-matter of claim 1 is not considered new over the disclosure of document D1.

Note: The analysis step is a feature integrating process carried out by a feature integrating layer (cf. reference 103 in figure 2) which calculates local average and local maximum values (cf. § 39 and also column 13 lines 40-42). The points of

maximum value localise the parts of the input image where certain features (e.g. edges with a given orientation) are more concentrate and therefore they localise the parts of the input image where the extraction of higher level features (e.g. "V" patterns) can be conveniently carried out.

2. Document D2 defines a hierarchical pattern identification method similar to that one disclosed by document D1, said method comprises the calculation of the likelihood of the extracted features (cf. § 47, 67, 68) both between the steps of extraction of different-level features and at the end of the recognition process for identifying the category of the extracted object.

Hence, since the method step of calculating likelihoods of features has been already employed for the same purpose in a context similar to that one of document D1, it would be obvious to the skilled person to apply this method step with corresponding effect to the method of document D1 thus arriving at the method of **claim 2**.

Therefore, the subject-matter of claim 2 does not involve an inventive step (Article 33(3) PCT).

- 2.1 Moreover, document D2, disposes for extracting the same feature at different orientations and with different sizes (cf. § 49).

Therefore also the subject-matter of **claim 3** appears to lack an inventive step over the prior art.

3. In the available prior art there is no indication to the *re-extraction* method step defined in **claim 4**. Therefore the subject-matter of the claim appears to be novel and inventive.

4. **Claims 6 and 7** are obscure, as tentative interpretation, it is assumed that they disclose, in very general term, the employment of thresholds for regulating the feature extraction process.

However, the employment of thresholds in relation with processes which imply

decisions (e.g. identification/recognition/verification process) is common practise and therefore the subject-matter of the claims cannot be considered inventive.

5. In **claim 8**, and more clearly in the corresponding passage of the description (see page 19 lines 18-25), it is disclosed that the position of the barycenter of a facial feature (e.g. mouth, eyes) can be put in relation with the position of other facial features; said relation can be used, for example, for identification purposes or for discarding results which do not comply with anthropometric criteria.  
Such procedure however is well known in the field of facial feature extraction (cf. document D3 column 9 line 63 - column 10 line 4) and therefore the subject-matter of claim 8 does not establish an inventive step over the prior art.
6. In the system of document D2, a feature extraction layer generates a signal which is a measure of the likelihood of the presence of the feature to be extracted (cf. § 47). Since the highest-order feature extracted and recognized by the system can be, among other things, a face (cf. § 63), it is clear that the system, and the corresponding method, of document D2 can be used for identification of the presence/absence of a face image within the input data.  
The subject-matter of **claim 11** is therefore not inventive over the prior art.
7. The method of document D1 can be employed for identifying the position of a face within the input data (cf. § 64).  
Therefore, the subject-matter of **claim 12** is not considered new over the disclosure of document D1.
8. **Claims 13 and 14** define substantially the same subject matter of claim 1 in terms of a pattern identification apparatus and a pattern identification program respectively.  
Therefore what has been set out for claim 1 holds also for claims 13 and 14.

9. **Claims 15 - 17** define a hierarchical identification method similar to that one outlined in claim 1 with the difference that the method of these claims is organized on more levels, at least three, whilst the method of claim 1 comprises only two levels. Document D1, describes a method organized on three levels (cf. figure 4 and § 41-43), therefore the subject-matter of claims 15-17 is not new with respect to this document.
10. The integrating process carried out by a feature integrating layer (cf. document D1 § 39; column 13 lines 40-42) to which reference has been made in section 2. of this communication, integrate feature extraction results by a plurality of feature extractors in the same layer. Therefore the subject-matter of **claim 18** is not new.
11. **Claims 19 and 20** define substantially the same subject matter of claim 15 in terms of a pattern identification apparatus and a pattern identification program respectively. Therefore what has been set out for claim 15 holds also for claims 19 and 20.